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ABSTRACT

This paper describes a model for evaluating and acquiring instructionally effective and cost effective educational computer software in university psychology departments. Four stages in evaluating the software are developed: (1) establishing departmental goals and objectives for educational use of computers; (2) inventorying and evaluating existing software holdings and identifying goals and objectives that cannot be met with existing software; (3) meeting software needs through obtaining public domain software, evaluating commercially available software, and obtaining cost estimates for developing in-house software; and (4) requesting software purchases and/or development that will meet goals and objectives in the most instructionally effective and cost effective manner. Methods of determining instructional effectiveness and cost effectiveness are covered. A software inventory form, a software evaluation form, a partial list of psychological software publishers/distributors, and a list of other sources of software are provided. (ABB)

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A Model for Evaluating and Acquiring Educational Software in Psychology (Abstract)

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This paper describes a model for the evaluation and acquisition of educational computer software in psychology. The model encourages the involvement of all faculty members and students in the processes of establishing goals and objectives; inventorying and evaluating software; and in the acquisition of a software library that is both "instructionally effective" and "cost effective". Methods of determining "instructional effectiveness" and "cost effectiveness" are discussed. Handouts provide a sample inventory form, a sample evaluation form, a list of sources of "public domain" software in psychology, and a list of some of the major distributors of psychology software.

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A Model for Evaluating and Acquiring Educational Software in Psychology
(Summary)

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Microcomputers are rapidly becoming an integral part of psychology departments' instructional processes. As such, departments with lean budgets are finding another commodity that is making demands for funds: educational software. This paper describes a model that can be used to help psychology departments evaluate software so that they may make purchases that are "instructionally effective" as well as "cost effective". This is an iterative model that has four interrelated stages:

1. Establish departmental goals and objectives for the educational use of computers.

2. Inventory and evaluate existing software holdings. Identify goals and objectives that cannot be met with existing software.

3. To meet software needs:

   a. Obtain "public domain" software.

   b. Perform "hands-on" evaluations of commercially available software.

   c. Obtain cost estimates for the development of "in house" software.

4. Request software purchases, and/or development that will meet the goals and objectives in the most "instructionally effective" and "cost effective" manner.

Stage 1: A broad spectrum of faculty and students should be involved in the development of departmental goals and objectives for the educational use of computers. In doing this the department should attempt to reach a consensus concerning the ways in which computers are to be used, and the courses for which computerization is desirable. As an example, one of our departmental goals is to have "tool programs" (e.g. word processing; data analysis) available for all students' use. Another is to to use demonstration programs in conjunction with testing and assessment courses; we have refined this goal into course objectives that specify the use of certain programs in specific classes. We have tended to minimize such uses as computer assisted instruction, and therapeutic simulation. Goals and objectives can and should be changed as new programs become available and as the needs and interests of students and faculty change.

Stage 2: Standardized forms should be used to inventory and evaluate existing software holdings. (See Handout for sample inventory and evaluation forms.) In making an inventory at least all of the following are recorded:

Program Name
Source/Producer
Subject Area
Target Population
Purpose of the Program
Type of Program (e.g., Drill and Practice)
Hardware Requirements
Program Location
Cost

To determine the "quality" of software holdings, both students and faculty should be involved in program evaluation. Typical "quality" criteria that can be reviewed are:

Scope and Accuracy of Content
Ease of Use
Adequacy of Documentation
Interest Level
Timing (e.g., too slow or too fast)
Strengths
Weaknesses

Evaluation forms should be summarized separately for students and faculty. Much of this task can be automated and a "data-base" file can be established for each program. A printed catalog of holdings with evaluative summaries should be widely distributed to students and faculty. This catalog should be reviewed to determine if "high quality" programs are available to meet all of the departmental goals and objectives. If this in fact is the case, then the department has no current software needs and the software budget can be used in other areas. Realistically, however, the needs and desires will always exceed the resources, thus certain goal and objective deficiencies will be identified.

Stage 3a. Good quality "public domain" psychology software is becoming more available; also, some psychologist-programmers may be willing to share their personal programs. In these cases, for little more than the price of a disk some departmental goals and objectives can be met. One of the major problems with this approach, however, is that it is sometimes difficult to find sources of such "free software". (See handout for a list of some of the sources of such software.) All software acquired in this manner should be cataloged and evaluated using the process

described in Stage 2 .

Stage 3b. If needs still exist, and they will, then software publishers/distributors should be contacted for catalogs, demonstration copies and programs for review. (See handout for a listing of some of the major psychological software distributors.) Appropriate assurances should be given that no duplicates will be made, and when making a request, the software publisher should be informed of the intended use of the program - perhaps they have something new that will meet your needs. In almost all cases, the dictum, "If I can't try it, I won't buy it", should be followed. Demonstration copies should be subjected to an evaluation process similar to the one used in Stage 2. As a courtesy to the publishers, copies of the summary evaluations should be provided for their use.

Stage 3c. In most instances, "in-house" software development is very time consuming and frustrating. Thus, unless you have access to programmers willing to work for minimum wages or less, the cost of developing your own software is usually prohibitive. Exceptions to this rule occur when the needs are so unique that only some specially prepared software will do the job, or when there is the possibility that the software could be marketed sufficiently to recover the developmental costs or when you enjoy writing programs as a hobby.

Stage 4. The concept of "instructional effectiveness" requires subjective judgment on the part of instructors. That is, instructors should ask themselves:

1. "Would the use of this program help students learn more material?"

2. "Would the use of this program allow class time to be used more effectively?"

3. "Could some other media be used to teach the material better and/or faster?"

4. "Would the use of this program stimulate thinking skills and reasoning abilities?""

As such, software may be considered "instructionally effective" if it stimulates learning and thinking, supplements and/or reinforces classroom activities, and provides for an improved use of classroom time.

One approach to determining the "cost effectiveness" of a program is to determine total expenditure for all copies of the program. Then estimates should be made concerning the number of students who will use the program and the typical number of times each student will use it in a given time period. The product of these two figures will give a "frequency of use" estimate. A "cost effectiveness" ratio can be formed by dividing the cost estimate by the frequency of use estimate. Programs that have a relatively low ratio may be considered "cost effective" because the cost per time of use is relatively low. Conversely, software with a high ratio may be considered not "cost effective".

At this point it should be mentioned that as more software is acquired, more people will want to use it, and then there will be a demand for more hardware. Thus, we have reached an interesting paradox in educational computing, "The more you have, the more you need". An analysis of this paradox goes beyond the scope of this paper.

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SOFTWARE INVENTORY FORM

PROGRAM NAME:_____

_____Version or Date_____

SOURCE:_____

_____

_____

WHERE LOCATED:_____

HARDWARE REQUIREMENTS:_____

SUBJECT MATTER:_____

_____

_____

TYPE OF PROGRAM (e.g. test scoring)_____

_____

WHAT DOES THE PROGRAM DO?_____

_____

_____

LOCATION OF WRITTEN DOCUMENTATION:_____

FACULTY MEMBERS/STAFF WITH EXPERIENCE USING THIS PROGRAM:

_____

_____

ARE REVIEWS AVAILABLE?_____ LOCATION OF REVIEWS_____

_____

COMMENTS:_____

_____

_____

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SOFTWARE EVALUATION FORM

PROGRAM:_____

_____VERSION OR DATE_____

SOURCE:_____

_____

_____

SUBJECT MATTER:_____

_____

WHAT DOES THE PROGRAM DO?_____

_____

_____

TYPE OF PROGRAM (e.g. test scoring):_____

_____

HARDWARE REQUIREMENTS:_____

_____

_____

COST _____ CAN DUPLICATES BE MADE LEGALLY?_____

AMOUNT OF TIME REQUIRED FOR A "TYPICAL USER" _____

NUMBER OF STUDENTS WHO CAN USE THIS PROGRAM COMFORTABLY AT ONE TIME? _____

Please rate the program on all of the following criteria. Use a 1-5 rating scale, with 5 being the highest rating.

CONTENT ACCURACY _____

CONTENT SCOPE _____

EASE OF USE _____

ADEQUACY OF DOCUMENTATION _____

EASE OF DOCUMENTATION USE _____

SUITABILITY FOR CLASSROOM USE _____

SUITABILITY FOR INDIVIDUAL USE _____

ADEQUACY OF ON-SCREEN MENUS _____

WHAT ARE THE MAJOR STRENGTHS OF THIS PROGRAM?

WHAT ARE THE MAJOR WEAKNESSES OF THIS PROGRAM?

HOW COULD THIS PROGRAM BE USED IN THE INSTRUCTIONAL PROGRAM?

WOULD THIS PROGRAM HELP STUDENTS LEARN MORE MATERIAL?

WOULD THIS PROGRAM ALLOW CLASS TIME TO BE USED MORE EFFECTIVELY?

COULD SOME OTHER MEDIA BE USED TO TEACH THIS MATERIAL MORE EFFECTIVELY?

DOES THIS PROGRAM STIMULATE THINKING SKILLS/CREATIVITY?

HOW MANY STUDENTS DO YOU FEEL WOULD USE THIS PROGRAM EACH YEAR?

IN WHAT COURSE(S) WOULD THIS PROGRAM BE USED?

APPROXIMATELY HOW MANY HOURS OF USE WILL THIS PROGRAM RECEIVE IN ONE YEAR?

IF PURCHASED, WHERE DO YOU FEEL THIS PROGRAM SHOULD BE STORED?

ON A SCALE OF 1-10 RATE YOUR PRIORITY FOR THE PURCHASE OF THIS PROGRAM (1 IS THE HIGEST PRIORITY)

HOW MANY COPIES OF THIS PROGRAM SHOULD BE PURCHASED?

COMMENTS:

REVIEWER _____

FACULTY/STAFF/STUDENT_____

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PARTIAL LIST OF PSYCHOLOGICAL SOFTWARE PUBLISHERS/DISTRIBUTORS
(8-85)

Applied Innovations
South Kingstown Office Park
Wakefield, RI 02879
(800) 272-2250
(401) 789-5081

Behavioral Systems
8 E. Montgomery Crossrd.
Savannah, GA 31406
(912) 927-2463

ESP (This is an on-line Social Psychology Journal)
12021 Wilshire Blvd. #1080
Los Angeles, CA 90025

Expert/Ware, Inc.
16 W. 16th St #2LN
New York, NY 10011

Hammett Microcomputer Division
Hammmett Place
P.O. Box 545
Braintree, MA 02184
(617) 848-1000

Human Systems Dynamics
9010 Reseda Blvd. #222
Northridge, CA 91324
(818) 993-8536
(800) 451-3030

IPS
5211 Mahoning Ave., #135
Youngstown, OH 44515
(216) 799-3282

IPAT
P.O. Box 188
Champaign, IL 61820

Life Science Associates
1 Fenimore Rd.
Bayport, NY 11705
(516) 472-2111

Robert Litke, Ph.D.
432 Cottage
Vermillion, SD
(605) 624-2948

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Matex Associates, Inc.
90 Cherry St.
Box 519
Johnstown, PA 15907

M.E. Mills, Ph.D.
224 Avocado, #13
Costa Mesa, CA 92626
(714) 631-5028

MULTI-HEALTH SYSTEMS
P.O. Box 87
Lynbrook, NY 11563

PAR, Inc.
P.O. Box 98
Odessa, FL 33556
(800) 331-TEST
(813) 968-3003

Pergamon Press, Inc.
Maxwell House
Fairview Park
Elmsford, NY 10523

Psychologistics, Inc.
P.O. Box 3896
Indialantic, FL 32903
(305)259-7811

Psych Lab
1714 Tenth St.
Wichita Falls, TX 76301
(817)723-0012

Psychological Software Specialists
1776 Fowler, #7
Columbia Center North
Richland, WA 99352
(509) 735-3427

Psychometric Software, Inc.
2050 South Patrick Drive
Indian Harbour Beach, FL 32937
(305)777-3839

psyQ Systems
1730 Rhode Island Ave., N.W. #714
Washington, D.C. 20036
(202) 822-8881

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Precision People, Inc.
3452 North Ride Circle, S.
Jacksonville, FL 32217
(904)262-1096

OPSAO Lab
8036 S. Sheridan Ave.
Tacoma, WA 98408

Reason House
204 E. Joppa Rd. #10
Towson, MD 21204
(301) 321-7270

Statsoft
2831 E. 10th St #3
Tulsa, OK 74104
(918) 583-4149

Teller, Bailey Assoc., Inc.
P.O. Box 7240
Boulder, CO 80306
(303) 258-7258

Unaweep Software
2754 Compass Dr. #367
Grand Junction, CO 81506
(303)241-1516

Western Psychological Services
12031 Wilshire Blvd.
Los Angeles, CA 90025

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OTHER POSSIBLE SOURCES OF SOFTWARE

The references listed below might prove useful in obtaining low cost, free, and/or public domain software in psychology. It should be noted that the use of a "bulletin board" requires a modem connected to a microcomputer. Also, when writing for a program, you must include a blank disk and postage. The bulletin board phone numbers are for MODEM ACCESS.

SOME PSYCHOLOGICALLY ORIENTED BULLETIN BOARDS

Amer Psych Info Exch
Marc Martin, PhD
New York, NY
(212) 662-7171

Humanities Forum
Gary Smith, MD
Winston-Salem, NC
(919) 722-2135

Med Info Service
W. R. Caudle, PhD
Tampa, FL
(813) 279-4124

Psychologists' Info Net
Robert K Klepac, PhD
Tallahassee, FL
(904) 893-9621

The following Newsletter and Journal are valuable sources of information on all aspects of computers in psychology. In these publications you will find many hints how to expand your software holdings as well as other valuable information.

CP/P
P.O. Box 0
26 Trumbull Street
New Haven, CT 06511
(203) 562-9873

MicroPsych Network
Professional Resource Exchange, Inc.
P.O. Box 15560
Sarasota, FL 34277-1560